CLAIMS

What is claimed is:

1. A mobile satellite telecommunications system, comprising:

at least one user terminal;

at least one satellite in earth orbit; and

at least one gateway bidirectionally coupled to a data communications network;

said user terminal comprising a controller responsive to applications for selecting individual ones of a plurality of Quality of Service (QoS) modes for servicing different application requirements.

2. A system as in claim 1, wherein said user terminal operates to communicate a request for a selected one of said QoS modes at least to said gateway, and in response the system allocates resources to accommodate the requested QoS mode.

3. A system as in claim 1, wherein a user is billed a greater amount for use of a QoS of higher quality.

4. A system as in claim 1, wherein said QoS modes comprise a Highest Quality of Service mode, a Medium Quality of Service mode, a Best Available Quality of Service mode, and a Guaranteed Data Rate Packet Data Service mode.

5. A system as in claim 1, wherein said controller selects one of a circuit switched or a packet switched mode of operation.

6. A mobile satellite telecommunications system, comprising:

at least one user terminal;

a constellation of satellites in earth orbit;

at least one gateway bidirectionally coupled to a data communications network; and

a processor responsive at least to stored satellite ephemeris information for selecting a path through said satellite constellation to a destination gateway for routing a communication to or from said data communication network and said user terminal, and for causing a description of said selected path to be transmitted from said user terminal to at least one of said constellation of satellites.

7. A system as in claim 6, wherein said processor is further responsive to stored gateway location information for selecting said path through said satellite constellation to said destination gateway.

8. A mobile satellite telecommunications system, comprising:

at least one user terminal;

a constellation of satellites in earth orbit; and

at least one gateway bidirectionally coupled to a data communications network;

said user terminal comprising a controller operable for reducing an amount of information contained within a packet header after transmitting a first packet to at least one satellite of said constellation of satellites.

9. A system as in claim 8, wherein the packet header of said first packet contains information that is descriptive of at least an identification of a source address and a destination address of the packet, and a connection identifier identifying a

communication connection to which the packet belongs, and wherein headers of subsequent packets of the communication connection contain only the connection identifier.

10. A system as in claim 9, wherein said satellites comprise a processor and a memory for extracting and storing the information from the header of the first packet, and for routing subsequent packets based on the stored information and on the connection identifier.

11. A system as in claim 10, wherein the subsequently transmitted packet headers are expanded to contain the stored information prior to being transmitted to the data communication network.

12. A system as in claim 9, wherein said satellites and said destination gateway comprise a processor and a memory for extracting and storing the information from the header of the first packet, and for routing subsequent packets based on the stored information and on the connection identifier.

13. A system as in claim 12, wherein the subsequently transmitted packet headers are expanded by said destination gateway to contain the stored information prior to being transmitted to the data communication network.

14. A method for operating a mobile satellite telecommunications system, comprising:

providing at least one user terminal, at least one satellite in earth orbit and at least one gateway bidirectionally coupled to a data communications network; and

responsive to applications, selecting with said user terminal individual ones of a plurality of Quality of Service (QoS) modes for servicing different application requirements.

15. A method as in claim 14, and further comprising communicating a request for a selected one of said QoS modes at least to said gateway, and in response allocating resources to accommodate the requested QoS mode.

16. A method as in claim 14, wherein a user is billed a greater amount for use of a QoS of higher quality.

17. A method as in claim 14, wherein said QoS modes comprise a Highest Quality of Service mode, a Medium Quality of Service mode, a Best Available Quality of Service mode, and a Guaranteed Data Rate Packet Data Service mode.

18. A method as in claim 14, and further comprising selecting one of a circuit switched or a packet switched mode of operation with said user terminal.

19. A method for operating a mobile satellite telecommunications system, comprising:

providing at least one user terminal, a constellation of satellites in earth orbit and at least one gateway bidirectionally coupled to a data communications network; and

responsive at least to stored satellite ephemeris information, selecting a path through said satellite constellation to a destination gateway for routing a communication to or from said data communication network and said user terminal, and transmitting a description of said selected path from said user terminal to at least one of said constellation of satellites.

20. A method as in claim 19, wherein the step of selecting a path is further responsive to stored gateway location information for selecting said path through said satellite constellation to said destination gateway.

21. A method for operating a mobile satellite telecommunications system, comprising:

providing at least one user terminal, a constellation of satellites in earth orbit and at least one gateway bidirectionally coupled to a data communications network; and

reducing an amount of information contained within a packet header after transmitting a first packet to at least one satellite of said constellation of satellites.

22. A method as in claim 21, wherein the packet header of said first packet contains information that is descriptive of at least an identification of a source address and a destination address of the packet, and a connection identifier identifying a communication connection to which the packet belongs, and wherein headers of subsequent packets of the communication connection contain only the connection identifier.

23. A method as in claim 22, further comprising extracting and storing the information from the header of the first packet in said satellites, and routing subsequent packets based on the stored information and on the connection identifier.

24. A method as in claim 23, and further comprising expanding the subsequently transmitted packet headers to contain the stored information prior to being transmitted to the data communication network.